



Practice

8.3 Multiplying and Dividing Rational Expressions

Simplify each rational expression.

1. $\frac{2x^4}{x^5} \cdot \frac{6x}{x^3} \cdot \frac{x}{4}$

2. $\frac{x^2 - 8x + 7}{x^2 + 6x - 7}$

3. $\frac{9x^2 + 12x + 4}{9x^2 - 4}$

4. $\frac{3x}{x^{10}} \cdot \frac{x^3}{27} \cdot \frac{9x^4}{2}$

5. $\frac{x^2 + 7x + 12}{x^2 + x - 6}$

6. $\frac{4x^4}{9x} \cdot \frac{9x^3}{10x} \cdot \frac{15x^2}{2x}$

7. $\frac{x^2 - 5x + 6}{x + 4} \cdot \frac{3x + 12}{x - 2}$

8. $\frac{2x - 3}{5x + 1} \div \frac{6x^2 - 13x + 6}{15x^2 - 7x - 2}$

9. $\frac{4x - 8}{x^2 - x - 6} \div \frac{x^3 + x^2 - 6x}{x^2 - 9}$

10. $\frac{x^3 - 9x}{x^2 + 11x + 24} \cdot \frac{x^2 + 7x - 8}{x^2 - 4x + 3}$

11. $\frac{\frac{x^2 - 16}{x - 3}}{\frac{x + 4}{x^2 - 9}}$

12. $\frac{\frac{x - 5}{x^2 - 100}}{\frac{x^2 - 25}{x + 10}}$

13. $\frac{\frac{x^2 + 10x - 11}{x^2 + 6x + 5}}{\frac{x^2 + 9x - 22}{x^2 + 3x - 10}}$

14. $\frac{\frac{x^4 - 81}{3x^2 + 27}}{\frac{x^2 - x - 12}{x}}$

15. $\frac{x - 6}{x + 2} \cdot \frac{\frac{2x - 1}{x - 6}}{\frac{x - 2}{x + 2}}$

16. $\frac{\frac{x^2 - 5x + 6}{x^2 - 8x + 15}}{\frac{x - 2}{x - 5}} \div \frac{x^2 - 9}{x^2 + 3x}$

17. $\frac{x - 4}{x - 7} \cdot \frac{\frac{x^2 - 49}{3x - 12}}{\frac{x^2 + 14x + 49}{x + 5}}$

18. $\frac{\frac{x^2 - y^2}{5x^3y^2}}{\frac{4x + 4y}{15x^2y^5}}$
